ANAEROBIC DIGESTION
Feasibility of Integrating Sand-laden Dairy Manure

OBJECTIVES
The goal of this study is to explore the potential for a dairy producer to have sand bedding for their freestall barn and an anaerobic digester to process manure. The specific objectives are:
1. To develop information needed to design prototype units for dealing with sand bedding that could be installed on dairy farms,
2. To investigate the feasibility of removing all sand from the manure prior to digestion, and
3. To develop prototype design(s) for digesters that can accept raw sand-laden dairy manure from the barn.

PROJECT DESCRIPTION
Animal scientists, veterinarians, cow comfort specialists, and many dairy producers agree that a deep bed (8” or greater) of sand is the gold standard for bedding freestalls. The attributes of sand bedding are all positive from the cow’s perspective. Historically, sand-laden dairy manure (SLDM) has caused problems with manure systems on many farms. Recently, much work has been done by universities and industry to develop processes to handle SLDM. These processes include prudent methods to remove SLDM from barn alleys, convey it to a processing site or storage location, and to separate bedding sand from manure. Reliable equipment is readily available to perform these tasks. The recent effort has resulted in an increased number of dairies using sand bedding. This project will investigate possible solutions when sand bedding and anaerobic digestion are desired on the same farm.

OUTCOME
This feasibility study focuses on determining the key elements needed to successfully design a SLDM/anaerobic digestion system. Laboratory and field experiments along with engineering calculations will be conducted to develop information needed to evaluate the feasibility of having sand bedded freestalls and anaerobic digestion on the same farm.

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